

Claims:

1. (currently amended) A method of aggregating web services in generating a user interface for a computing device, the method comprising ~~the steps of:~~

a) receiving at least one web service description, wherein said at least one web service description comprises a plurality of web service description elements that define a web service interface to each of a plurality of web services;

b) processing said at least one web service description to identify inputs and outputs to associated web services;

generating one or more user interfaces through which input data is obtainable from use of web services and output data is displayable;

providing said one or more user interfaces, wherein in use, at least a subset of said plurality of web services is invoked using input data obtained through said one or more user interfaces, and wherein output data is displayed through said one or more user interfaces from said at least a subset of said plurality of web services;

monitoring said input data obtained and said output data displayed through said one or more user interfaces to identify patterns in said input data and said output data that suggest that a first web service of said plurality of web services requiring one or more inputs, wherein each input to said first web service is obtainable from output of by invoking a second web service of said plurality of web services; and

e) generating a new user interface for said computing device after identifying said patterns, wherein in use, the first web service is automatically invoked using output data from the second web service when the second web service is invoked through said new user interface adapted to perform the substeps of

i. invoking one or more second web services to obtain output data from said one or more second web services; and

~~ii. invoking said first web service, using output data from said second web services as input data to said first web service, to obtain output data from said first web service.~~

2. (currently amended) The method of claim 1, wherein said new user interface is further adapted to display output data from said first web service ~~to at least one user.~~
3. (currently amended) The method of claim 1, further comprising ~~wherein said generating step comprises~~ generating code for said user interface, and ~~wherein said method further comprises~~ storing said code in a storage device.
4. (original) The method of claim 3, further comprising the step of transmitting said code from said storage device to said computing device.
5. (original) The method of claim 3, further comprising executing said code on said computing device.
6. (currently amended) The method of claim 1, wherein said new user interface ~~generated at step c)~~ is further adapted to prompt ~~at least one user~~ for input data and receive said input data in the user of said new user interface for invoking said second web service ~~from said at least one user.~~

Claims 7-10: (cancelled).

11. (currently amended) The method of claim 1-10, wherein said patterns ~~first and second web services~~ are identified by ~~monitoring~~ detecting instances where said input data obtained ~~from said at least one user~~ through said one or more ~~second user~~ second user interfaces matches output data displayed ~~to said at least one user~~ through said one or more ~~second user~~ second user interfaces.

12. (currently amended) The method of claim 1-10, wherein said patterns ~~first and second web services~~ are identified by detecting instances in which said ~~at least one user has copied~~ selected data from output data displayed to said at least one user through said one or more ~~second user~~ second user interfaces is copied to an input field on said one or more ~~second user~~ second user interfaces, in which data in said input field is used to invoke a web service.

Claims 13-14: (cancelled).

15. (currently amended) An apparatus programmed to perform a method of aggregating web services in generating a user interface for a computing device, comprising:

means for receiving at least one web service description, wherein said at least one web service description comprises a plurality of web service description elements that define a web service interface to each of a plurality of web services;

means for processing said at least one web service description to identify inputs and outputs to associated web services;

means for generating one or more user interfaces through which input data is obtainable from use of web services and output data is displayable;

means for providing said one or more user interfaces, wherein in use, at least a subset of said plurality of web services is invoked using input data obtained through said one or more user interfaces, and wherein output

data is displayed through said one or more user interfaces from said at least a subset of said plurality of web services;

means for monitoring said input data obtained and said output data displayed through said one or more user interfaces to identify patterns in said input data and said output data that suggest that a first web service of said plurality of web services is obtainable from output of a second web service of said plurality of web services; and

means for generating a new user interface for said computing device after identifying said patterns, wherein in use, the first web service is automatically invoked using output data from the second web service when the second web service is invoked through said new user interface

~~a) means for receiving at least one web service description, wherein said at least one web service description comprises a plurality of web service description elements that define a web service interface to each of a plurality of web services;~~

~~b) means for processing said at least one web service description to identify a first web service requiring one or more inputs, wherein each input to said first web service is obtainable by invoking a second web service of said plurality of web services; and~~

~~c) means for generating a user interface for said computing device adapted to~~

~~i. invoke one or more second web services to obtain output data from said one or more second web services; and~~

~~ii. invoke said first web service, using output data from said second web services as input data to said first web service, to obtain output data from said first web service.~~

16. (original) The apparatus of claim 15, wherein the apparatus is a mobile device.

17. (currently amended) A computer-readable medium upon which a set of software components is stored, the software components containing instructions for performing the steps in a method of aggregating web services in generating a user interface for a computing device, the instructions for:

receiving at least one web service description, wherein said at least one web service description comprises a plurality of web service description elements that define a web service interface to each of a plurality of web services;

processing said at least one web service description to identify inputs and outputs to associated web services;

generating one or more user interfaces through which input data is obtainable from use of web services and output data is displayable;

providing said one or more user interfaces, wherein in use, at least a subset of said plurality of web services is invoked using input data obtained through said one or more user interfaces, and wherein output data is displayed through said one or more user interfaces from said at least a subset of said plurality of web services;

monitoring said input data obtained and said output data displayed through said one or more user interfaces to identify patterns in said input data and said output data that suggest that a first web service of said plurality of web services is obtainable from output of a second web service of said plurality of web services; and

generating a new user interface for said computing device after identifying said patterns, wherein in use, the first web service is automatically invoked using output data from the second web service when the second web service is invoked through said new user interface

~~a) receiving at least one web service description, wherein said at least one web service description comprises a plurality of web service description~~

~~elements that define a web service interface to each of a plurality of web services;~~

~~b) processing said at least one web service description to identify a first web service requiring one or more inputs, wherein each input to said first web service is obtainable by invoking a second web service of said plurality of web services; and~~

~~c) generating a user interface for said computing device adapted to perform the substeps of~~

~~i. invoking one or more second web services to obtain output data from said one or more second web services; and~~

~~ii. invoking said first web service, using output data from said second web services as input data to said first web service, to obtain output data from said first web service.~~